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IN THE UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF ARKANSAS
WESTERN DIVISION
- - -

HENRY W. BOERNER, Individually and as Administrator of the Estate of MARY JANE BOERNER, Deceased, Plaintiffs, vs. No. LR-C-98-427

BROWN & WILLIAMSON TOBACCO COMPANY, Defendant.

DEPOSITION OF
SANFORD H. BARSKY, M.D.
LOS ANGELES, CALIFORNIA
FRIDAY, JANUARY 14, 2000

ATKINSON-BAKER, INC. COURT REPORTERS
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REPORTED BY: LISA MICHAELS, RPR, CSR NO. 6361
FILE NO.: 9A004B8

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HENRY W. BOERNER, Individually and as Administrator of the Estate of MARY JANE BOERNER, Deceased, Plaintiffs, vs. No. LR-C-98-427

BROWN & WILLIAMSON TOBACCO COMPANY, Defendant.

Deposition of SANFORD H. BARSKY, M.D., taken on behalf of the Plaintiffs at 10422 Lindbrook Drive, Los Angeles, California, commencing at 10:05 A.M., on Friday, January 14, 2000, before Lisa Michaels, RPR, CSR No. 6361.

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A P P E A R A N C E S

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WITNESS: SANFORD H. BARSKY, M.D.

EXHIBITS:

QUESTIONS WITNESS WAS INSTRUCTED NOT TO ANSWER:
(NONE)

INFORMATION TO BE SUPPLIED:
(NONE)

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FRIDAY, JANUARY 14, 2000; LOS ANGELES, CALIFORNIA
10:05 A.M.
- - -

SANFORD H. BARSKY, M.D.,
having first been duly sworn, was
examined and testified as follows:

EXAMINATION

BY MS. HARTLEY:

Q. Good morning, Dr. Barksy?
A. Good morning.
Q. This is Stephanie Hartley. I believe we have met before.
A. Well, we've never met except over depositions.

Q. I think we met at a trial once. Perhaps you don't recall. I was not the one asking you the questions. But in any case, could you please state your full name for the record, please.
A. Yes, it's Sanford H. Barksy, M.D.
Q. And what is your professional address?
A. It's Department of Pathology, UCLA School of Medicine, Los Angeles, California, 90024.

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Q. And we're here today on the case of Mary Jane Boerner; is that you're understanding?
A. Yes.
Q. When were you hired in this case, Dr. Barksy?
MR. SHEFFLER: Object to the form.
THE WITNESS: I recall that in the summer Bruce Sheffler came to see me with a bunch of slides and asked my to review them, and after that I received a set of medical records and that was in the fall. So I guess you can say my "hiring" began in the summer.
BY MS. HARTLEY:
Q. And that was Bruce Sheffler who's with you today?
A. Yes.
Q. Do you know what company he represents?
A. You mean his law firm? Or his client?
Q. No, his client.
A. I think it's one of the tobacco companies. Brown & Williamson or something like that.
Q. Have you testified for tobacco

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companies in the past?
A. Yes.
Q. Can you tell me all of the cases in which you've testified?
A. There was one court case. There was one case that went to trial. It was a case of the client's name was Conner.
Q. Who was the tobacco company in that case?
A. I think that was R.J. Reynolds.
Q. Have you testified in depositions in any other tobacco cases?
A. Yes, there were -- I believe there were two other cases that I've given depositions other than the present one.
Q. Correct.
A. There were two other cases.
Q. Do you recall their names?
A. You know, not offhand. If I thought about it, they probably would come to me, but I don't remember them right at this second.
Q. Was one of them the Clark case?
A. Yes, I believe so.
Q. And who was the cigarette company in that case?

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A. I'm not sure. I don't know at this point. I don't remember.
Q. And in the third case you don't remember the name of that case?
A. If you said the name to me, I might recall it.
Q. Do you recall the cigarette company involved in that case?
A. I think the third case was R.J. Reynolds.
Q. Have you ever been hired by lawyers representing Brown & Williamson prior to this case?
MR. SHEFFLER: Object to the form.
THE WITNESS: No. Well, I've looked at slides on different cases, but it hasn't resulted in a deposition. So again, it depends what you mean by hired.
BY MS. HARTLEY:
Q. So you've looked at slides for Brown & Williamson before this case?
MR. SHEFFLER: Object to the form.
THE WITNESS: Bruce Sheffler over the past ten years occasionally has brought me slides to look at. So I assume that probably is that firm, but I don't know for sure.

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BY MS. HARTLEY:
Q. Approximately how many cases has Bruce Sheffler brought you over the past ten years?
MR. SHEFFLER: Again, let me just make an objection for the form.
THE WITNESS: Bruce Sheffler hasn't brought me any cases in the last several years except for this case, but let's say if we go back more than five years -- I would say oh, maybe I've looked at -- looked at 10 to 15 cases over the years, but none recently.
BY MS. HARTLEY:
Q. Approximately how many cases or sets of slides have you looked at for the tobacco companies in the past ten years?
MR. SHEFFLER: Again, let me object to the form of the question.
THE WITNESS: Oh, I would say 20 to 30 perhaps more. You know, many of these cases are just a cursory slide review and that's it. So it's hard for me to recount the exact number.
BY MS. HARTLEY:
Q. And when Bruce Sheffler brought you these slides in this case, the Boerner case, back in the summer of 1999, what did he ask you to do?

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A. Well, as he always asks me to do, he starts off by asking me to review them in terms of, you know, what pathology is present. So I review them, look at them under the microscope, and that's how it starts.
Q. And then what do you do?
A. Well, it depends. Like I said, the vast majority of these cases, that's last I hear of them. In this particular case, he asked for my opinion as to the pathology and asked me if I would be willing to review the medical records, which I

said I would, and then he asked me, you know, what my assessment of the case was.

Q. Did he ask you about causation?

MR. SHEFFLER: Objection. Overbroad.

THE WITNESS: We eventually got into that area. So, yes, he did ask me about that.

BY MS. HARTLEY:

Q. Dr. Barsky, I have a C.V. that is not up to date, but I just wanted to ask you if in the past four years you have written any articles or published any articles?

A. Yes, I have. My C.V. changes, I would say, on a monthly basis, and I constantly update it. I've given -- I've e-mailed Bruce Sheffler and

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given him a hard copy of an updated C.V.

MR. SHEFFLER: Stephanie, if it makes it easier, we can mark it as your Exhibit 1 if you'd like.

MS. HARTLEY: You have it? That would be good.

MR. SHEFFLER: We'll do that. Exhibit 1 will be the curriculum vitae of Dr. Sanford Barksy.

MS. HARTLEY: Okay.

(Plaintiffs' Exhibit 1 was marked for identification.)

BY MS. HARTLEY:

Q. On that C.V., you have a section called "publications"; is that correct?

A. Yes.

Q. And you have them all numbered; is that correct?

A. Yes.

Q. Can you tell me what the last number in your most current C.V. of publications is?

A. The last number in the publications section is a 111, but I want to say -- I want to point out something. In the past -- and don't remember when this changed -- I listed my patents

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together with my publications, and a year or so beforehand, I decided I was going to take them out and list them separately. So the numbers could change as a result of that reordering. But right now, the publications as listed list to 111.

Now, the most recent numbers, some of those are just communicated manuscripts which I list under publications but I say they are just communicated manuscripts.

Q. What else have you brought today with you to the deposition?

A. I brought some notes that I took when I read through the history, and I also wrote a list of my pathology findings.

Q. Can you please have the court reporter mark that as Exhibit No. 2.

MR. SHEFFLER: Stephanie, there wasn't a document request in this case. I'm going to let these be marked, but I do want to say that by doing so I'm not waiving my right to object to further requests for documents et, cetera, in depositions. I mean, obviously the proper course is to serve the

document request prior to the deposition.
Since in this case he has the documents with him and you have requested them and

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because there doesn't seem to be any prejudice, as long as it's understood that we're not adopting this as a procedure in the future, I will not press my objection, and I will allow them to be marked.
MS. HARTLEY: It's my understanding that what he brings to the deposition I'm entitled to see and have marked.
MR. SHEFFLER: Well, we differ.
MS. HARTLEY: Court reporter, could you please mark those as Exhibit No. 2.
THE WITNESS: There are two pages. One is the history and one is the path findings. Did you want them both marked as 2?
MS. HARTLEY: That's fine.
(Plaintiffs' Exhibit 2 was marked for identification.)
BY MS. HARTLEY:
Q. What else have you brought with you to the deposition?
A. There are some photographs of the slides that I took with my digital camera.
Q. Photomicrographs?
A. Yes.
Q. Is it possible for you to get color copies of those for the court reporter?

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MR. SHEFFLER: We do have color copies.
MS. HARTLEY: Okay. Can you please mark those as Exhibit No. 3.
MR. SHEFFLER: We'll take that under advisement. I'll let you know at the end of the deposition.
BY MS. HARTLEY:
Q. How many photomicrographs do you have, Dr. Barksy?
A. I believe it's ten.
Q. And you took those, yourself, with your digital camera?
A. Yes, and we have actually files of those, too. Electronic files. If you'd like.
Q. What else did you bring, Dr. Barksy?
A. I have one of my articles. I have a reprint of one of those articles.
Q. Which article is it?
A. It's my paper on the rising incidence of bronchioloalveolar lung cancer that was published in "Cancer" in 1994.
Q. What else did you bring with you?
A. Just a tablet to write on if I have to.
Q. A blank one?

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A. Yes.
Q. Have you written any notes on it so far?
A. No. It's just a clipboard with papers. They are blank.
Q. Now my understanding is that in the summer of 1999 Bruce Sheffler brought you some

slides to review; is that correct?
A. Correct.
Q. What slides did you review? Can you identify them for me by number?
A. No, because I reviewed them in, like I said, in the summer of 1999 and then shortly thereafter I took pictures of them. But I did not code the pictures in terms of the numbers of the slides. But I recall it was around slightly over ten slides, but I haven't reviewed them recently, and I haven't looked at them recently, and I don't know their numbers, per se.
Q. Are those these slides that you took, the photomicrographs?
A. Yes.
Q. And did you take them at that time in the summer of 1999?
A. Yes.

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Q. Do you know from recollection or from looking at those pictures whether they were slides from the lobectomy or slides from the bronchial brushing?
A. I recall reviewing the slides of the bronchial biopsy, but the pictures that I took are from the lobectomy specimen.
MR. SHEFFLER: Stephanie, if you are just looking for information here, I can give the numbers of the slides that he reviewed if you are interested in that.
MS. HARTLEY: I am.
MR. SHEFFLER: I will get those for you. Just leave this area, if you would. I'll get those numbers for you, and I'll read them into the record.
MS. HARTLEY: Okay. I may some other questions.
MR. SHEFFLER: Sure, absolutely. But I mean instead of just fumbling around, I can read you the slides.
MS. HARTLEY: That will be fine.
Q. Did you look at any bronchial brushing pathology?
A. I don't recall looking at those.

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MR. SHEFFLER: In fact, here are the slides. Okay. Here are all the slides that we've got. And they are 12018-96V recut; 12496-96FSA-1V; 12496-96FSB-1; 12496-96FSC1; 12496-96FSC2; 12496-96A-2; 12496-96BMHC1; 12496-96B-2; 12496-96C3. C4, C5, C6, C7, C8, C9 all in the series 124-96-96.
The next series is 8390-98. These are all recuts and they are numbered sequentially 1, 2, 3, 4, 5, 6, 7. Another 7V. And then there is a slide 15707-98. There's a slide 47962-98MH.
There's a slide 67 -- excuse me. Strike that.
Slide 6117-99AW; 6117-99BW; 10916-991W; 10916-992W and 10916-993W. That's it.
MS. HARTLEY: Okay. Thank you.
Q. Dr. Barksy, when you reviewed these slides in the summer of 1999, you told me you

reviewed the slides but you did not have the medical records; is that correct?
A. That's correct.
Q. Did you have any of the pathology reports?
A. I may have had a copy of the path record, but I don't remember for sure. But the

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medical records followed shortly thereafter in which I reviewed them and they'd certainly have the path report in them.
Q. Correct. Did you have anything else when you reviewed those slides?
MR. SHEFFLER: With respect to the case specifically?
MS. HARTLEY: Right, or textbooks or anything.
Q. When you were reviewing those slides, what did you have with you?
MR. SHEFFLER: I object to the question. It's overbroad unless you limit it to what did he review when he reviewed the slides. Obviously, his entire library.
MS. HARTLEY: I'm not talking about what did he have in the room with him. I'm talking about when he reviewed the slides.
Q. Dr. Barksy when you reviewed the slides in the summer of '99 in the Boerner case, what did you review at the time you reviewed the slides?
A. Nothing, I just reviewed the slides.
Q. Did Bruce Sheffler give you any history on the case at that time?

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A. Well, when he came to visit me, he did tell me -- he did summarize the case very briefly. I mean, he told me it was a woman. I think he told me her age. I think he told me, you know, a summary of the history as he knew it.
Q. Did he tell you that she was a smoker?
A. I think he told me that she was a former smoker or an ex-smoker. I think he said that to me at that time.
Q. Did he tell you how many pack years she had smoked?
A. No.
Q. Did he tell you her occupation?
A. No.
Q. Can you recall what summary he gave you of the case?
MR. SHEFFLER: Objection. Asked and answered, but go ahead.
THE WITNESS: Well, in addition to the things I already mentioned, I think he mentioned to me that this was a case that was going to go to trial. That it was in Arkansas. It was in federal court. That's what I remember he said about it.
BY MS. HARTLEY:

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Q. Did you take the pictures at that meeting?
A. Well, what happened was he left the

slides with me and I took them that evening and the next day he picked them up.
Q. So did you take photomicrographs that evening?
A. Yes.
Q. And those are the ones you have with you today?.
A. Yes.
Q. So the medical records followed?
A. Yes.
Q. Did he send you anything else aside from the medical records?
A. No.
Q. When he sent the medical records, did he come and meet with you to discuss them?
A. No.
Q. Did you discuss them with him over the phone?
A. No.
Let me modify that. I didn't discuss the medical records, per se, with him. When they came, I reviewed them, but after that, a few weeks

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or a month or so after that, Mr. Sheffler did call me and we discussed my whole impression of the case.
Q. Have you reviewed any radiology in this case?
A. No.
Q. Have you consulted with any other doctors in this case?
A. No.
Q. Have you discussed the case with anyone other than Mr. Sheffler or people in his office?
A. No.
MR. SHEFFLER: Let me just -- Dr. Barksy may not know. Dr. Woodside did have a brief discussion with Dr. Barksy about this case. He's here today.
MR. WOODSIDE: Only in your presence.
MR. SHEFFLER: Right, with me so I just want the record to reflect.
BY MS. HARTLEY:
Q. Did you review Dr. Feingold's deposition in this case?
A. No.
Q. Have you seen Dr. Feingold's report?
A. No.

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Q. Did you review Dr. Sidransky's deposition in this case?
A. No.
Q. Have you reviewed Dr. Sidransky's report?
A. No.
Q. Have you seen photomicrographs taken by anybody else in this case?
A. No.
Q. Have you been told about Dr. Feingold's testimony in this case?
A. The only thing I recollect is somebody mentioned -- I guess it was Mr. Sheffler -- that Dr. Feingold was involved in the case, but I have

not been told anything about his testimony.
Q. Have you been told anything about his impression?
A. No.
Q. Have you been told anything about Dr. Sidransky?
A. No.
Q. Do you know who Dr. Sidransky is?
A. Yes.
Q. What is your understanding of who Dr. Sidransky is?

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A. I believe Dr. Sidransky is a head and neck physician who's also a scientist and does cancer research. I believe he's at Johns Hopkins.
Q. Has anyone told you of Dr. Sidransky's impressions in this case?
A. No.
Q. Have you read any depositions at all regarding this case?
A. No.
Q. Dr. Barksy, since I have the benefit of your current C.V. in front of me, can you tell me whether you've written on lung cancer in the past five years?
A. Yes.
Q. And which articles would that be?
A. I've written some abstracts, and I've also written a paper that's going to be published, and I have another paper that's in the -- it's about to be communicated.
Q. Can you tell me what numbers those are on your C.V.?
A. Sure. Let me just check it out.
This is under a heading that's called "Abstracts and Presentations." Number 64 is an abstract by authors O'Connell, Heras, Palmarini,

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Sharp and Barksy that's entitled "JSRV-related Sequence and Capsid Protein in Human Lung BAC/PAC Suggests a Retroviral Connection." It's published in "Lab Investigation" in 1998.
The next one under "Abstracts and Presentations" is number 75. It's by Grossman, Hiti, McNiel, O'Connell, Shao and Barksy entitled "Feline Bronchioloalveolar Lung Cancer Shares Common Properties with Sheep and Human BAC." It's in "Experimental Biology" 1999.
The next is number 84. It's just by Barksy. It's entitled "A Retroviral Link to Human Tobacco-Related Lung Cancer?" And it was in what was called the "AIM99: Tobacco Research in Action Symposium" in 1999.
Q. What was the title of that?
A. "A Retroviral Link to Human Tobacco-Related Lung Cancer?" That's it for the abstracts.
Now, in the column that's entitled "Publications," there are a number of publications on lung cancer.
The first is number 72. The authors are Fligiel, Roth, Kleerup, Barksy, Simmons and Tashkin entitled "Tracheobronchial Histopathology

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in Habitual Smokers of Cocaine, Marijuana and/or Tobacco," published in "Chest" volume 112:319 to 326, 1997.

The second paper is numbered 79 by Roth, Arora, Barksy, Kleerup, Simmons and Tashkin entitled "Airway Inflammation in Young Marijuana and Tobacco Smokers" in the "American Journal of Respiratory Critical Care Medicine," volume 157;928 to 937, 1998.

Next is paper No. 85 by authors Barksy, Roth, Kleerup, Simmons and Tashkin entitled "Histopathologic and Molecular Alterations in Bronchial Epithelium in Habitual Smokers of Marijuana, Cocaine and/or Tobacco" published in the "Journal of American Cancer Institute" volume 90:1198 to 1205, 1998.

The next is number 99 by De las Hera, Barksy, Hasleton, Wagner, Larson, Egan, Ortin, Gimenez, Palmarinin and Sharp entitled "Evidence for a Protein Related Immunologically to the Jaagsiekte Sheep Retrovirus in Some Human Lung Tumors." This is in press in the "European Respiratory Journal."

The next is number 110 O'Connell, De las Heras, Palmarini, Sharp and Barksy. Title

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is "JSRV-related Sequence and Capsid Protein in Human Lung BAC/PAC Suggests a Retroviral Connection" and this paper has been communicated to the "Journal of Virology," but it has not been accepted yet.

There's one other number 106 and it's by Grossman, O'Connell, Hackett, McNiel, Hiti, De las Heras, Sharp and Barsky. It's entitled "Feline Bronchiloalveolar Lung Carcinoma and a Derived Cell Line Share Common Properties with Both Sheep Pulmonic Adenomatosis and Human BAC." And actually, there's an error here. It is submitted to "Cancer Research," but it's not yet accepted. I had written that it was in press, but that's not correct. That's an error. It's a submitted stage.

That's it.

Oh, there's one other thing. There's one other item. This is under my U.S. patents. It's by Barksy and Grossman. A feline bronchioloalveolar lung cancer xenograft and cell line for the study of common animal-human pathogens. It's an United States patent application. That's it.

Q. Do you get funding for any of these

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articles that you've written?

A. Yes.

Q. Who did you get funding from? Who have you gotten funding from in the last three years?

MR. SHEFFLER: Objection. For these articles or for everything?

MS. HARTLEY: For these articles.

THE WITNESS: Well, there are different funding sources for different articles. Some of

the funding comes from the National Institutes of Health. Some comes from a private foundation in Los Angeles called the Margaret Early Foundation, and some comes from the UC, University of California Tobacco Related Disease Research Program.

BY MS. HARTLEY:

Q. Does any of the funding come directly from the tobacco companies?

A. No.

Q. When you reviewed the slides back in the summer of 1999, can you tell me what your impressions were?

A. Let me first sort of clarify or embellish something. I said that I reviewed the

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slides in the summer of '99 and then I took digital pictures of what I thought the most cellulin areas were. I have reviewed not the slides again but I have re-reviewed those pictures, and I've reviewed those pictures, you know, a number of times and even recently. So when you ask me what my opinions were in the summer 1999, you know, it's hard to really dissect that out from what my opinions are currently. Not necessarily that they've changed, but it's hard for me to think back of my thought processes at that time. I just wanted to clarify that point.

Q. Well, if you cannot differentiate between what you thought then and what you think now, then that's fine.

A. I just wanted to clarify that with you.

Q. Is it correct, Dr. Barksy, you cannot separate out what you thought when you first reviewed the slides with what you now think that you have reviewed the slides and the medical records and had other information provided to you?

A. Well, I don't feel my opinions have changed, but on the other hand, you know, what I'm thinking now is what I'm thinking now, and I just

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wanted to make that point to you.

Q. So is that correct, Dr. Barksy, that you cannot differentiate for me what you believed in the summer of 1999 when you first saw the slides and what you think now?

A. Well, I can do the best I can.

Q. Okay. Well, then can you tell me what you believed when you reviewed the slides in the summer of 1999?

A. Okay. When I reviewed the slides -- and like I said I have reviewed approximately 10 or more slides of this mass lesion in the left upper lobe of the lung -- I saw a number of different histopathological patterns. The mass was clearly a primary lung cancer. I saw areas of bronchioloalveolar lung cancer. And these areas were of the nonmucinous type. They seemed to be of the Clara cell type, and they were lined juxtaposed to a pulmonary scar, which was filled with a lot of elastosis. And the scar suggested to me that it was due to an old pulmonary infarct of the lung

because of the presence of elastosis.
Also around the scar, I found foci of what I would term bronchioloalveolar metaplasia, hyperplasia and atypical hyperplasia. These foci

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progressed into the areas of bronchioloalveolar lung cancer.
Now, in addition, there were other areas of this tumor that were much poorly differentiated, and they were what I would consider areas of dedifferentiation, and these areas were varied. Some were adenocarcinoma. Some were squamous cell carcinoma. Some were a mixture of adeno and squamous, which I would term adenosquamous carcinoma. There were areas that were differentiated and which I would term Clara cell carcinoma, but many of these areas were kind of mixed together.
So the way I put the case together in the lung, that this was a scar-related bronchioloaveolar lung cancer that was arising from these foci of metaplasia and hyperplasia and atypical hyperplasia, and that it had progressed and dedifferentiated into aggressive appearing adenocarcinoma and squamous cell carcinoma and adenosquamous carcinoma and Clara cell carcinoma.
I found a small metastasis in one of the bronchial lymph nodes, and I also recall seeing that the bronchus, the tumor was fairly large. It filled most parts of the lung. It grew between the

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pleura. It was subpleural in areas next to the scar, but it did extend to grow next to a major bronchus, but the bronchus was histologically normal in appearance.
And that's what I remember seeing in the summer, and as I reviewed the pictures that I took, my opinion was confirmed and reinforced. But my opinion, you know, right now is what I have today, and what I'm telling you. That was just the point I wanted to make.
Q. So your opinion today is what you just told me?
A. Yes.
Q. You said -- first, let me go over this. I have made some notes. I'd like you, if you would, to pull out your pictures. Are those pictures numbered?
A. Yes, well they have letters.
Q. They have letters?
A. Yes.
Q. Well, what I'd like to do is as I talk about these areas that you saw, I'd like you to tell me which picture best represents that. I believe we've done this before Dr. Barksy.
You said that you saw areas of

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nonmucinous BAC; is that correct?
A. Yes.
Q. Which pictures best represent that nonmucinous BAC?
MR. SHEFFLER: We're going to take a short break here to consult, Stephanie. We'll be right

back.
MS. HARTLEY: Okay.
(A brief recess was taken.)
MR. SHEFFLER: What we're going to do -- since you want to talk about the pictures, let me tell you what we have. We've got a code for the pictures that Dr. Barksy has photographed. It has the ten pictures and their description, and we have the pictures themselves. Now, you want these marked or how do you want to proceed?
MS. HARTLEY: Yes, I would like to have them marked.
MR. SHEFFLER: May I make a suggestion? May I suggest that you mark the code as 3 and then the pictures as 3-A through -J because they are already labeled A through J.
MS. HARTLEY: That's fine.
MR. SHEFFLER: Exhibit 3 and A through J.
(Plaintiffs' Exhibits 3, 3-A through 3-J

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were marked for identification.)
BY MS. HARTLEY:
Q. Dr. Barksy, before we took a break, I had asked you if you would identify for me the picture that best represents the nonmucinous area of BAC that you had described previously.
A. Well, in the pictures I took, the nonmucinous BAC is present on at least three of the pictures, and they all show the BAC very well. So I don't know which the best one is.
Q. Why don't you tell me all three?
A. Well, in the slide that's labeled Boerner A. That's one of them. Then there is a slide labeled Boerner F, which has a scar with the BAC. And then there's a slide labeled Boerner J, which is also BAC.
Q. And those are the slides that you believe represent nonmucinous areas of BAC?
A. Correct.
Q. Then you said it was juxtaposed to a pulmonary scar and you told me that slide F shows that scar; is that correct?
A. Slide F, yes.
Q. Are there any others that you believe demonstrate the pulmonary scar that you have seen?

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A. Yes. The foul F or slide F was the scar with BAC, but we have a picture just of the scar, and that's labeled Boerner E.
Q. Any others?
A. No.
Q. Then you said that there was an area of adenocarcinoma?
A. Yes.
Q. What appeared to you to be adenocarcinoma?
A. Yes.
Q. What slides best represent that?
A. Well, there's a slide that has adeno and squamous carcinoma on the same slide and even also has some Clara cells and so that's Boerner B.
Q. Any others?
A. No. No other slides or any others

that represents that squamous, Clara cell.
Q. Any other slides that represent some adenocarcinoma?
A. No.
Q. Any other slides that represent some squamous carcinoma?
A. No. I tried to photograph -- I used this slide because it -- I saw areas that were
00035
squamous and adeno and that, but I didn't photograph them. I photographed those areas on this slide alone.
Q. Okay. Now how about areas of adenosquamous carcinoma? Which slide best represents that?
A. Well, that would also be in the slide B.
Q. And you said you saw some Clara cell carcinoma. Any other slide besides slide B that represent that?
A. There are other areas, but I didn't photograph them.
Q. So we have now slide A, B, E, F and J.
What does slide C represent?
A. Slide C is a section of a normal bronchus. A normal appearing bronchus.
Q. And slide D?
A. It's a normal appearing bronchus that has adjacent tumor.
Q. And slide G?
A. That's a focus of bronchioloalveolar metaplasia.
Q. And slide H?
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A. That's a focus of bronchioloalveolar hyperplasia.
Q. And slide I?
A. That's a focus of bronchioloalveolar hyperplasia with atypical cells.
Q. So if asked what type of cancer you believed Mary Jane Boerner had, what would your answer be?
A. I would say it was a bronchioloalveolar lung cancer that had dedifferentiated into adenosquamous carcinoma, adenocarcinoma, squamous cell carcinoma, and Clara cell carcinoma. That would be my "official diagnosis" if it was a case that I was reviewing in my routine duties as a pathologist.
Q. Do you have an opinion as to what caused Mary Jane Boerner's lung cancer?
A. No.
Q. Do you have an opinion as to what risk factors may have contributed to Mary Jane Boerner's lung cancer?
A. I think that the scar which is present may have been a risk factor. The scar from an old infarct.
Q. Anything else?
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A. No.
Q. Do you have any opinion on what may

have caused the scar?
A. I think the scar was due to an old infarct, and that's due to either poor circulation or a thromboembolus. They are fairly common in the lung in patients you know, of her age.
Q. Is smoking a risk factor for poor circulation?
A. I'd say in general, yes. It's usually arterial circulation, though, to the extremities or to the heart.
Q. Is smoking a risk factor for thromboembolism?
A. Yes.
Q. Are you familiar with the WHO classifications of tumors?
A. Yes.
Q. Do you consider the WHO classifications of tumors as represented in their treatise of the Armed Forces Institute of Pathology to be authoritative?
MR. SHEFFLER: Object. Do you really want to say the WHO in their treatise AFIP?
MS. HARTLEY: Right.

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MR. SHEFFLER: I object. Those are two different organizations, and that's non sequitur.
MS. HARTLEY: Let me ask it again.
Q. Dr. Barksy, do you believe that the WHO classification of tumors as reflected in their treatise is authoritative?
A. Yes, I do. But let me just qualify my answer by saying it's not the only agency or group of pathologists that make criteria. There are other bodies. There are other treatises. There are other textbooks. There are other societies that come up with criteria as well. Those are also -- I consider those also authoritative.
In addition, in pathology, there are the authoritative nature of learned scholars, authors of textbooks, et cetera. One takes not any single agency or group and believes only what they have to say exclusively. One has to look at the whole -- the whole field and then one adopts, you know, what the consensus is and one applies one's own common sense out of the whole, you know, milieu.
So although I do consider them authoritative, I don't rely solely on what the WHO declares as being truth. I have to look at the

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whole ball of wax, if you will.
Q. What did you rely on in terms of treatises in concluding that this was a BAC lung cancer that had dedifferentiated into adeno, squamous and Clara cell?
MR. SHEFFLER: Objection to the form. Assumes facts not in evidence. In fact, assumes facts contraindicated by the previous testimony.
BY MS. HARTLEY:
Q. Go ahead and answer.
A. Well, when I look at a case, any case, I bring to the microscope the sum total of my training and experience. That means what I've

read, what I've seen. I formed over the years as a pathologist my own criteria. If I had to go back to the books on every case that I look at, I would never get through my daily workload.

So this case is no different. I brought the sum total of my experience, my own published work, the work of other organizations such as the WHO et, cetera, and applied to the best of my ability an interpretation of the patterns that I saw before me.

Q. Dr. Barksy, does smoking cause lung cancer?

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A. It depends on what you mean by "cause." Certainly in populations for certain cancers of the lung it contributes a tremendous increased risk. And from an epidemiological standpoint, it causes lung cancer. But again, it depends what you mean by "cause." If you speak of an individual case, it may cause an individual case of lung cancer, but you have to apply different criteria to causation than you do epidemiologically.

Q. Do you believe smoking caused Mary Jane Boerner's lung cancer?

A. No, I do not.

Q. And why do you not believe her smoking caused her lung cancer?

A. Well, the main reason is because I feel the cancer that she developed was a bronchioloalveolar lung cancer and it seems to be arising in a preexisting scar. That's the first reason.

The second reason is I see evidence under the microscope of a progression from precursor lesions of bronchioloalveolar metaplasia and hyperplasia, which are lesions that exist in the periphery of the lung and which are thought to

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be precursor lesions of bronchioloalveolar lung cancer.

The third component of the evidence as I put the case together is that this patient wasn't an active smoker but was an ex-smoker, who I believe from reviewing the chart has stopped for over 15 years. So she's in the category of ex-smoker rather than active smoker. And although ex-smokers have an increased rate of lung cancer, the types that they get and their overall incidents decrease progressively with years of secession.

So all these things are in my mind when I come to my conclusion. But it's mainly because of the histological type, the fact that I believe it is a BAC, and that it's arising peripherally from these precursor lesions. And finally, I don't see any evidence of a central airway abnormality in this patient.

Q. Have you ever reviewed a case that you believed -- a case of lung cancer that you believe was caused by smoking?

A. Oh, sure.

Q. How many?

A. Well, you have to understand that in

my routine job, when I review cases of lung
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cancer, I'm not really asked to address that issue. I'm not asked to address etiological concerns. I'm simply asked to I diagnose and categorize the particular kind of lung cancer. So you know, I'm not routinely thinking on those terms.

But when I've been asked to look at cases by attorneys for cigarette companies, etcetera, I have reviewed cases that I have felt that it was likely that cigarette smoking played a role in the causation or etiology of the particular case.

Q. And can you recall the names of any of those?

MR. SHEFFLER: Objection. I think it calls for work product. I'm going to instruct the witness not to answer.

I just instructed you, Dr. Barsky, not to answer. You may ignore my instruction if you wish, but that may be work product, and I'm not sure she's entitled to that.

BY MS. HARTLEY:

Q. Does cigarette smoking cause BAC?

A. BAC is a type of lung cancer in which I've not been convinced that there is convincing
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epidemiological evidence in terms of odds ratio and relative risk that meet the criteria epidemiologically of causation. There are some studies that show a weak association but not strong enough to implicate causality. I never think of BAC or I haven't thought of BAC as one of the cancers of the lung that are linked to smoking.

Q. What do you associate BAC with in terms of causation?

A. I think that the vast majority of cases of BAC the causation is unknown. We know we're seeing an increase in BAC and also in peripheral adeno. We're seeing an increase in patients who smoke as well as who don't smoke, and it's not clear why that's occurring.

There have been a number of risk factors over the years implicated. A high fat diet, perhaps radon exposure. There's is a viral hypothesis that's resurrected from time to time, which I'm actively studying right now, but I think most BACs occur and certainly a large number do occur in nonsmokers and there's no apparent etiological agent that one can implicate.

Q. Do you know if Mary Jane Boerner had a high fat diet?
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A. I recall a statement in her chart that said she was obese. I assume that meant she had a high fat diet, but doesn't mean she did, per se.

Q. All you know about her diet was a mention in the chart that she was obese?

A. She had a problem, I remember reading in the chart after her cancer was diagnosed where she was having thromboembolic phenomena especially in her left hand and arm. And one of the

therapists in addition to being anticoagulated, I remember something to the effect that they wanted her on a low cholesterol diet. I assume that meant her cholesterol was elevated, but I don't recall specifically seeing that. It may have been there, but I don't recall reading that.
Q. From seeing her cholesterol level?
A. Yes. I'm sure they are there, but I just don't recall. I don't recall what those were.
Q. Do you have any knowledge on whether Mary Jane Boerner was exposed to radon?
A. No.
Q. Do you have any knowledge on whether Mary Jane Boerner had any kind of virus that may have caused -- virus that you associate as causing
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BAC?
A. No.
Q. Do you believe that the risk of developing lung cancer returns to 0 after a person stops smoking?
MR. SHEFFLER: Object to the form of the question. It makes no sense if you talk about relative risk. There is no 0 relative risk.
THE WITNESS: There are a number of studies. Some are controversial, some studies, or some with conflicting result. There are studies that show that one's risk for lung cancer does decrease with the number of years of stopping. And that it approaches the risk of the nonsmoking population after so many years.
The studies are different though in terms of the number of years. Some say that you approach a baseline risk about 15 years after you've stopped. Some say at 25 or 30 years. Some say you never really approach the normal risk of -- the nonsmoker's risk of developing lung cancer. But most studies agree that the risk does decrease with the number of years. I mean, that's the whole basis of urging people to stop smoking cigarettes.
But the studies are, you know, a bit
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controversial, and I don't have a hard fast opinion. I believe the risk does decrease. I still think it's present, but I don't know exactly at what point or if it ever gets exactly to what the nonsmoker risk is. But what I do know is that there are many etiological factors out there, especially for BAC, that are not defined that the vast majority of patients with BAC do not have a risk factor but they get the tumor anyway.
BY MS. HARTLEY:
Q. Did you perform any tests on the pathology material?
A. No.
Q. Do you know of any tests that were performed on the pathology material?
A. No.
Q. Are you board certified, Dr. Barksy?
A. Yes. In anatomic and clinical pathology.
Q. You're not a pulmonary pathologist,

are you?
A. I am because I'm in charge of reviewing all the pulmonary pathology at UCLA, especially the lung cancer cases. I don't have subspecialty boards in pulmonary pathology, and I

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don't even know if they have subspecialty boards in that particular specialty, but I have become through my publications and through my job performance a pulmonary pathologist, especially for neoplastic pulmonary diseases. Not for non-neoplastic diseases. That's a separate kind of specialty.
Q. Have you ever read the Surgeon General's report relating to smoking?
A. I've never actually read the Surgeon General'S report, but I've certainly seen them quoting in text, newspapers and other journal articles.
Q. Would you recognize them as authoritative?
MR. SHEFFLER: Objection to the form of the question, and also object that it's overbroad. Authoritative as to what? Which reports and to what subjects?
THE WITNESS: I would consider them, you know, somewhat authoritative. They are actually based on epidemiological studies that preceded the reports by five to ten years.
BY MS. HARTLEY:
Q. Could you hold on, Dr. Barksy. I

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think I'm almost finished.
Dr. Barksy, have you reviewed any tobacco company documents? And what I mean by that is documents that were offered by the tobacco companies that have not been published.
A. No.
Q. Have you read any of the recent books that have been out for the past six or seven years on the tobacco company and cigarette smoking?
A. No.
MS. HARTLEY: I believe those are all the questions I have, Dr. Barksy.
MR. SCHULZE: This is Gerry Schulze, and ordinarily I don't like to double team, but I was provided with a curriculum vitae for Dr. Barksy yesterday, and I'm just going to ask Stephanie while we're on the record because I think everybody is going to know where I'm going. It contains a summary of areas of Dr. Barksy's interest, I suppose, and in that, Dr. Barksy states that BAC is a form of lung cancer who's etiology and pathogenesis is controversial and whose link to either main stream tobacco smoking or secondhand smoking unproven, and then he goes on to say past studies by the P.I. suggest that this type of lung

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cancer has increased dramatically in the last decade and is now the most common type of lung cancer seen at UCLA.
Stephanie, have you seen that statement?

MS. HARTLEY: No.
MR. SCHULZE: Do you mind if I ask Dr. Barksy a few questions about that?
MS. HARTLEY: No, I don't mind.
MR. SHEFFLER: She might not mind, but I think I might.
MR. SCHULZE: Do you mind?
MR. SHEFFLER: Go ahead, Gerry.

EXAMINATION

BY MR. SCHULZE:
Q. Doctor, you state that BAC is one of the most common types of lung cancer seen at UCLA; is that correct?
A. Yes.
Q. What is your source for that? Has somebody done a study?
A. I did a study.
Q. Personally did a study?
A. Well, there's two components of that.

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I review all the lung cancers at UCLA, and over the years I had noticed, anecdotally at least, that I was seeing more and more cases of BAC. And some of my surgical colleagues were telling me that they were seeing more and more cases of BAC. So I decided to see if this was really true or it was just, you know, my own anecdotal bias.
So the study that I did in 1994, I re-reviewed and pulled all the cases at UCLA from the '50s to the '90s and saw that, in fact, the absolute number and the relative number of cases were increasing. And that increase has -- it's sort of leveled off recently, but it's still the most common type of lung cancer we see at UCLA.
Q. Are there any published studies that you're aware of that any other institution has seen that type of increase in BAC?
A. Yes. There are a number of studies from other institutions that have -- and from the United States as well as other countries that have noted an increase in BAC. Some of these studies have also noted an increase in peripheral adenocarcinomas. Non BAC peripheral adeno. But I think it's a general consensus that peripheral adenos and BAC have increased in the last decade

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and even before.
There are a number of studies. I can't quote them, you know, off the top of my head at the moment, but I know that my paper cites some, and there have been others that have been observed in the literature.
Q. Do you have any theory as to a reason for the increase in BAC?
A. Obviously, any time you have a disease that has increased in incidence there has to be a "new factor in on the horizon" to explain it. And that was one of the reasons why my interest in the retroviral etiology was resurrected. Now, that doesn't mean that that's the reason, but it means there is a factor that has emerged or factors, etiological factors that have changed.

It's just like, you know, when AIDS came on the scene out of nowhere, and there was an AIDS epidemic; that meant that there was something etiological and environmentally that was causing this newly emerging disease and the increased incidence. So it's an intriguing question. It's one of the reasons why I want to study this disease and why I have studied it but I don't know for sure the reason.

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Q. What are the primary types of lung cancer that are recognized?

A. Well, the major types are the non-small cell lung cancers which include squamous cell carcinoma, adenocarcinoma of the non-BAC type, the bronchioloalveolar lung cancer, the large cell undifferentiated cancer, the large cell neuroendocrine carcinoma, sometimes varying components of mixed histology. And then of course there are the small cell cancers of the lung which can be subdivided into classic and intermediate and mixed. Those are the major denominations.

Q. I want to make sure I understand. Are you stating here that more cases of lung cancer at UCLA are BAC than any other kind?

A. I think BAC is the most common type that's diagnosed but peripheral adeno, non-BAC is a very close second, and I believe our numbers, they were kind of similar.

Q. Have you published the result of that study?

A. Well, that's my 1994 study.

MR. SHEFFLER: Gerry, we'll attach to it the record if you'd like.

MR. SCHULZE: Okay.

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MR. SHEFFLER: For the record, it's entitled Rising Incidence of Bronchioloalveolar Lung Carcinoma and it's Unique Clinicopathologic Features, and it shall be Exhibit 4.

(Plaintiffs' Exhibit 4 was marked for identification.)

BY MR. SCHULZE:

Q. I guess what I'm trying to get at, to make sure I understand what the doctor is saying is, are you saying that 51 percent or greater that the lung cancer seen at UCLA is bronchioloalveolar cancer?

A. No. I said it was the most common type of cancer diagnosed, but that doesn't mean 51 percent. It could be 20 percent, 25 percent. As long as it exceeds the other specific types. And I think in this study it was around 25 percent.

MR. SCHULZE: I believe that's all I have. Stephanie, is there anything else?

MR. SHEFFLER: I have a few questions.

EXAMINATION

BY MR. SHEFFLER:

Q. Dr. Barksy, are you a medical doctor and licensed to practice?

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A. Yes.

Q. Where are you licensed to practice?
A. Presently California.
Q. And if I understand from your answers to prior questions, Dr. Barksy, are you an anatomical and experimental pathologist?
A. Yes.
Q. And are you board certified, sir?
A. Yes.
Q. And, Doctor, did I understand you to testify that you are a pulmonary pathologist?
A. I consider lung cancer as one of my areas of interest and specialization.
Q. And where are you employed?
A. I'm employed at UCLA.
Q. At UCLA, Doctor, do you work in the medical hospital?
A. Yes.
Q. Do you also teach as a professor?
A. Yes.
Q. And do you also do research?
A. Yes.
Q. Now, in your role as a physician at the UCLA Medical Hospital, do you see lung cancers?

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A. Yes.
Q. About how many pathologists are at that hospital?
A. Well, in anatomic pathology, there's about ten, but there are other pathologists in clinical and experimental.
Q. So there's 10 pathologists. Now is there any pathologist at UCLA who specializes in the diagnosis of lung cancers?
A. Just me.
Q. So you are the lung cancer pulmonary pathologist at UCLA?
A. Yes.
Q. Doctor, could you tell us a little bit about that hospital?
A. Well, it's considered a teaching hospital. It's considered a quaternary referral center.
Q. What does that mean?
A. It means that -- well, there are primary health care centers like at a community level, then there are referral centers perhaps at a municipal level or regional level, and then there are really specialized hospitals that are called tertiary care centers, and then there are the

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super-specialized hospital, which are called quaternary centers where very specialize things are done and very unusual diseases are treated. And UCLA would fit that latter categorization.
Q. Can you give us a rough estimate of how many quarternary specialist hospitals there are in the country?
A. There are probably 20, 25, I imagine.
Q. And UCLA is one of those 25?
A. Yes.
Q. Doctor, could you just briefly -- and I mean very briefly -- tell us what your

educational background is starting with med school? Where did you go to med school?
A. I went to the University of Pittsburg med school. Then I did some training in Internal Medicine at the University of Massachusetts. Then I did my pathology training at Harvard at the Beth Israel Hospital. Then I worked as a pathology for one year at George Washington, and then I did some research training at the National Cancer Institute.
Q. Let me just back up for a second. At the National Cancer Institute, Doctor, what type of research was this?

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A. I did cancer research specifically on mechanisms of cancer metastasis.
Q. Were you still doing your pathology work at the time?
A. Yes.
Q. After the NCI experience and the research, what did you do?
A. Well, then I got my first real academic position where I did research and teaching and diagnostic work and that was at UCLA.
Q. So at UCLA, Doctor, what is your title?
A. It's now professor of pathology.
Q. So are you a full professor?
A. Yes.
Q. And I also noted from your C.V., Doctor, that you are a deputy coroner; is that correct?
A. Yes.
Q. And is that for Los Angeles?
A. Yes.
Q. So at Los Angeles were you asked to perform the duties as deputy coroner with respect to pathologic issues?
A. Yes, occasionally.

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Q. Glancing quickly at the C.V. which was mark as Exhibit 1, I noticed that you either edit or review for perhaps about 27 peer review journals; is that right?
A. Yes.
Q. Do many of those journals involve pathology?
A. Yes.
Q. Do they also involve cancer?
A. Yes.
Q. And are you currently researching cancer?
A. Yes.
Q. And among your research interests, Doctor, you mentioned before that you were interested in this carcinoma bronchioloalveolar lung carcinoma. Is that an interest that you've had for some time?
A. Yes.
Q. Are you currently researching on it?
A. Yes.
Q. And you did describe for us, Doctor, the reason why you were interested in this is

because you noticed an increased incidence in BAC over the years.

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When did you first begin seeing this increased incidence?

A. Well, let me just back up a point. I first became interested in BAC because it was a tumor that was related to an extracellular matrix that sometimes occurs in a scar or induced a scar and was interested in extracellular matrix interaction in breast cancer and BAC because it was an unique cancer from that standpoint. And as I was studying the matrix of BAC and the way BACs metastasize I started to see an increase as I said before anecdotally in the number of cases and then I asked the question is this really true or is it just something I'm managing and that's when I conducted this study.

And since I was interested in disease anyway, when I noticed that the disease was increased in the incidence, I became even more interested in trying to explain why this might be so. And that's how I got interested in disease even more.

Q. Doctor, I want to ask you some questions about this rising incidence, but before I do, let me get a little background here.

Are all lung cancers the same?

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A. No.

Q. Are there different types or different kinds of lung cancers?

A. There are different types, there are different cells of origin, and there's different biologies.

Q. And why is it important, Doctor, to know what type of lung cancer a patient may have?

A. The biology may be different. The prognosis may be different. The treatment may be different. There are a number of reasons why it's important to know.

Q. Is it also useful to know differences in types of lung cancer as a researcher?

A. Yes.

Q. And why is that?

A. Because since the types are different and the biologies are different, the molecular events that cause or contributed to the cancer are probably different and the etiologies are probably different.

Q. Now, when you say the etiologies of these different cancers are probably different, what does etiology mean?

A. Etiology means cause or causes.

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Q. And you are currently researching a potential etiology or cause of BAC; I do understand that right?

A. Yes.

Q. And what is that potential cause or etiology of BAC?

A. It's the relationship of retroviruses or retroviral sequences to the etiology of BAC.

Q. And that, Doctor, is ongoing research?
A. Yes.
Q. Being funded by various institutions?
A. It's being funded by the Margaret Early and this UC program.
Q. Doctor, what medical specialist or which specialists is responsible for determining what type of lung cancer a patient may have?
A. Well, that would be a diagnostic pathologist.
Q. And how do pathologists -- diagnostic pathologists make these determinations about specific lung cancer types?
A. We take tissue that's been give to us by a surgeon or pulmonologist, and we stain the tissue and cut sections and look at the patterns under a microscope.

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Q. I want to again get to this rising incidence of BAC lung carcinoma.
This is a study that you did back at least prior to you publishing it, which it was published in 1994?
A. Yes.
Q. And we've marked this now as Exhibit 4.
Doctor, in that study, who was the pathologist who reviewed the materials?
A. It was me.
Q. And did you review all the pathology that was listed in this case in this study?
A. Yes.
Q. Do you have the microscopic criteria that you used for diagnosing BAC in this study?
A. Yes.
Q. Is it listed in the paper that we've marked as Exhibit 4, "Rising Incidence of Bronchioloalveolar Lung Carcinoma"?
A. Yes.
Q. Bronchioloalveolar lung carcinoma, Doctor, is the same thing as BAC?
A. Yes.
Q. You have been using those terms

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interchangeably?
A. It makes your tongue tied to say "bronchioloalveolar" many times. So it was shortened to BAC. Some people use the term BAC.
Q. Before we get too many terms here, let's just stick with BAC. Now, doctor, is there any clinical findings, and I know that you rely upon the pathology here, but are there any clinical findings in general that may be helpful in identifying BACs?
A. Well, BACs are associated with some stereotypic type of clinical presentation. Of course, I want to emphasize that the bottom line is the tissue pattern under the microscope. So we can diagnose BAC even if the clinical presentation isn't typical or we may not diagnose BAC. But the typical presentation is a solitary peripheral lesion of the lung that's pleural based that puckers the pleura that may be associated with a

scar. That's the typical clinical presentation.
Q. Doctor, are you familiar with the term air bronchiograms?
A. Yes.
Q. What are air bronchiograms?
A. That's a radiological term that refers

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to a certain appearance on chest X-ray in which the bronchus becomes prominent, and it's a finding that radiologists make sometimes, and it's a finding that is seen in BAC.
Q. Is it seen in BAC more than other cancers?
A. Yes.
Q. And how does this phenomenon, this finding, how does this happen?
A. My opinion of the phenomenon is that the BAC almost by definition grows a certain way in the lung. It grows along alveolar septa and along airways in a lepidic growth pattern and it fills the alveolar lining.
Q. Alveolar, what is that?
A. Those are the sacks that the lungs are composed of that result in air exchange. When we breathe, our lungs expand and then they retract, and the airways are sort of like sponges. The alveolar sponges are like the holes in a sponge.
Anyhow, the BAC fills these spaces with proliferating cells that line the spaces and they group in a lepidic or radial pattern.
Q. They line the holes of these sponges?
A. Yes. They don't affect the bronchus.

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Q. And the bronchus is?
A. The bronchus is a tube that conducts air from our throat into the lungs and the bronchus serially divides like branches of a tree.
BAC doesn't affect the bronchus, unlike other cancers which can arise from the bronchus. So when the BAC is involving the alveolar spaces and the way we pointed out, it can make the bronchus stand out on chest X-ray and that's referred to as an air bronchiogram.
Q. Doctor, in the study that you did that you were asked about before, that was published in what journal?
A. 1994.
Q. And what journal, Doctor?
A. "Cancer."
Q. Is that a peer review journal?
A. Yes.
Q. And is that the journal name of the American Cancer Society?
A. Yes.
Q. You were the primary author in this article?
A. Yes.
Q. And is it the result of the research

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that you did?
A. Yes.
Q. Now, Doctor, you've mentioned in the outset of the article -- and I'm going to give it

to you so you can have it -- bronchioloalveolar lung carcinoma BAC is a form of lung cancer exhibiting many features that distinguish it from all other forms of lung cancer including non-BAC adenocarcinoma.

You've already told us some of the diagnostic things that make BAC different. Are there other things demographic or otherwise that make BAC different from other lung cancers?

A. Yes. For one thing, the biggest demographic thing is that the female to male ratio is close to 1 to 1. Most other lung cancers still have a very high male to female ratio.

Q. Could you explain what that means?

A. Well, it's just the number of cases of a particular lung cancer in males versus females.

Q. So there's a lot more males coming down with these squamous cell carcinoma or adenocarcinomas than females generally?

A. Yes.

Q. But in BAC, what's the relationship?

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A. Like I said, it's about a 1 to 1 female to male ratio. So, in other words, we see about as many cases of BAC in females as we do in males, and that ratio has been relatively constant over the years.

Q. Even while BAC has been rising dramatically?

A. Yeah, it's been rising in both sexes about equally.

Q. And is there, Doctor, anything else that makes BAC different or unique?

A. Well, I said before, it tends to be peripherally. It tends to arise in relationship to a scar, which it either can antedate or induce.

We do see it in a high percentage of nonsmokers. It also tends sometimes to occur in a multifocal manner.

Q. Doctor, could you describe the cases that you reviewed for this study? How did you get those cases?

A. Well, I just did a computer retrieval of every case of lung cancer that existed at our institution since the mid-'50s.

Q. And, Doctor, all of these cases had a diagnosis; is that right?

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A. Yes.

Q. So why was it that you rediagnosed them?

A. Well, because sometimes diagnostic criteria change over the years or different people are involved and the pathologist who reviewed the cases in the 1950s, most of those would not be around, and I wasn't there in the 1950s. So if you have different people reviewing cases, that introduces what's called an intraobserver bias, if you will.

So that's why if you do any study of a retrospective nature you want to make sure that you or your associates or both review all the cases so you can have an uniform criteria that you apply.

Q. So did you apply a uniform criteria to all 1,527 cases of lung cancer?
A. Yes.
Q. And, Doctor, when you did this rereview and rediagnosis with this uniform criteria that you employed, how much variability did you find from the original diagnoses?
A. Surprisingly, there wasn't that much variability. Around 5 percent or so.
Q. Doctor, the criteria for diagnosing

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BAC, is that contained in the part of the article called "Diagnostic Criteria"?
A. Yes.
Q. And rather than me read those couple paragraphs and ask you to explain it, let me ask you a couple of questions.
Do you always use the criteria that you have here in diagnosing BACs?
A. Yes.
Q. Do you use them in your practice as a pulmonary pathologist at UCLA weekly?
A. Yes.
Q. Roughly on average how many lung cancers do you see weekly?
A. I would say between 5 and 20. It can range. It could be a great range.
Q. And did you apply the same criteria that you've listed here in this study to the case that we brought you to look at, Mrs. Boerner?
A. Yes.
Q. Now, Doctor, earlier you were asked some questions about some of the photomicroscopy that you took in this case, and did you, in fact, take pictures of the pathology of the Mrs. Boerner's case?

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A. Yes.
Q. And let me just show you what has been marked previously as 3-A and, again, Doctor, could you tell us now that you have it in front of you there, could you tell us what it is that's significant in that picture and what it is about that picture that leads you to concludes Mrs. Boerner's cancer was a BAC?
A. First of all, I see neoplastic cells. I see malignant epithelial cells that are lining the alveolar spaces and growing along them. They are growing along them in a single cell fashion. They are not undergoing proliferation.
They are preserving the interstitium framework of the lung. That's intact. They're not destroying it. They are not invading into it. They are just invading along this interstitial framework. This is what is called a lepidic growth pattern and that's what I used to diagnose BAC.
Q. Doctor, you refer in your article to what is called classic BAC. How would you characterize what Mrs. Boerner's cancer exhibits?
A. Well, in the areas of BAC, they were classic. They were nonmucinous, as I said. The cells looked a little bit like Clara cells,

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although without immunio or EM, I couldn't rule out a type 2 pneumocytes.

Q. And what's the significance of those?

A. Those are two cells that one finds in the terminal bronchi and the alveoli that are thought to give rise to BAC. So it's those cells that are transferred that produce BAC.

Q. Now, Doctor, in your article you make the statement, and this is again the article that was referred to earlier by Plaintiffs' counsel Exhibit No. 4. You make the statement:

"Furthermore, the degree of nuclear pleomorphism or the degree of intraalveolar proliferation, including papillary proliferation manifested by the carcinoma cells, did not prohibit the assignment of the tumor into the BAC category if there was significant growth in a single cell pattern along alveolar septa."

What does that all mean, Doctor, in plain English?

A. What that means, if you have a significant degree of cell division or proliferation, that can produce a pattern where you

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no longer have single cells growing in a lepidic growth pattern. And if those cells make a granular pattern you might make the diagnoses of adenocarcinoma of a non-BAC type.

What I'm stating here is, irrespective of whether there was proliferation in some areas of some of these cases, if I saw a classic BAC pattern in a reasonable area of the tumor, I would conclude that that cancer belonged in the BAC category.

Q. And you applied that to all 1,527 cases you reviewed?

A. Yes.

Q. Likewise, doctor, it goes on to say in your article:

"The presence of solid areas of moderately to poorly differentiated adenocarcinoma also did not exclude the tumor from the BAC category if areas of classic BAC were present."

A. Yes.

Q. Now is that the same type of thing that you just described?

A. Yes.

Q. So even if you saw areas that were of another poorly differentiated cancer type, if you

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saw classic areas of BAC, how would you diagnose it?

A. I would conclude it was a BAC that underwent dedifferentiation into a more aggressive sub type.

Q. Doctor, you talk about dedifferentiation. In fact, let me just read to you from the next column on page 1164 of your article on cancer.

"Cases accepted as BAC were evaluated for the presence of areas of

dedifferentiation into more solid moderately to poorly differentiated adenocarcinoma."

What is "dedifferentiation," Doctor?

A. Dedifferentiation is a form of tumor progression that many cancers exhibit. Not just lung cancers. As cancers evolve, they are thought to acquire more molecular abnormalities, more instability of their gene form that contributes to what we determine dedifferentiation. It's a conversion to a more aggressive sub type, and it's a general pathway of progression that many cancers exhibit as they progress, as they metastasize, et cetera.

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Q. So dedifferentiation, Doctor, means that the cancer becomes less defined; is that right?

A. I would say less differentiated. In other words, the cancer becomes very aggressive, very deranged. It less resembles its normal counterpart. It's less differentiated. A normal cell is considered a differentiated cell.

Q. Is classic BAC a well-differentiated pattern?

A. Yes. It's considered well differentiated.

Q. Now, can it dedifferentiate from a poorly differentiated pattern to a well differentiated pattern?

A. That's not what's seen in the vast majority of cancers. The pathway is one direction. It begins as well differentiated, it progresses to poorly differentiated rather than the reverse.

Q. When you reviewed the cases for your study that we've marked as Exhibit 4, those 1,527 cases, what percentage roughly of BACs did you see that had patterns of dedifferentiation?

A. I think overall it was around 20

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percent, but the percentage varied depending on the specific kind of BAC. In the nonmucinous type, it was around 10 percent.

Q. You also wrote in your article, Doctor, about BACs and association with scarring. Do you recall that?

A. Yes.

Q. And you've also written an article about lung cancers that can cause desmoplasia. Do you remember that article?

A. Yes.

Q. So you've published on this issue in the past?

A. Yes.

Q. What is "desmoplasia," Doctor?

A. Desmoplasia is the formation of fibrous tissue, scarring if you will, as a result of tumor invasion. So there are cancers such as breast cancer which induce a profound scar and produce is a hard lump in the breast. BAC is another cancer that can induce a scar, which we term desmoplasia.

Q. You've used a few terms. Fibrosis is fibrosis. And scarring, for all practical purposes, the same thing in the lung?

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A. Yes.
Q. And fibrosis or scarring, can that be caused by cancer?
A. Yes.
Q. Can other things cause fibrosis and scarring?
A. Yes.
Q. When the fibrosis and scarring is caused by cancer, what's that called?
A. Desmoplasia.
Q. In the article that you wrote that maybe we should cite it for the record here was "The Extracellular Matrix of Pulmonary Scar Carcinoma is Suggestive of a Desmoplastic Origin."
Do you recall that article?
A. Yes.
Q. You've been studying desmoplasia since at least 1986? And perhaps some years before?
A. Yes.
Q. In that area, do you discuss the difference between scars that are caused by cancer, those desmoplasia scars and scars that are not caused by cancer?
A. Yes.
Q. And the scars that are not caused by

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cancers, do you refer to those as noncarcinoma scars?
A. Yes.
Q. What are some of the causes of cancers -- strike that.
What are some of the causes of noncarcinomative scars?
A. Well, in the lung, common causes are infarcts, old tuberculosis or histoplasmosis. That's called granulomatis disease. Sometimes trauma to the lung could be a cause of an old scar. Sometimes there's just a scar in the pleura that we don't know the reason why it occurred but we do find them.
Q. And, Doctor, can you tell when you look at a scar that's a granuloma, can you tell that scar is a granuloma scar and not a scar from a cancer when you look at it under a microscope?
A. Most of the times we can.
Q. And when you see an infarct, Doctor --
First of all, what is an infarct?
A. An infarct is death, necrosis of tissue due to poor blood supply, and it's usually due toe an occlusion in a blood vessel, which is called the thrombus or an embolus.

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Q. Do you see these infarcts in a wide range of patients?
A. Yes.
Q. Do you see them in smokers?
A. Sometimes.
Q. Do you see them in nonsmokers?
A. Yes.

Q. Is there anybody who has ever said that infarcts are in any way related to smoking?
A. Not pulmonary infarcts.
Q. And that's what we're talking about in this case is pulmonary infarcts. Infarcts that are pulmonary infarcts are infarcts in the lung?
A. They are quite common. We see them all the time, incidentally, at autopsy for example.
Q. Doctor, how can you tell if the scar is an infarct when you look at it under a microscope?
A. In the lung I said that an infarct was defined as necrosis or death of tissue. One type of tissue that we have in our lungs is called elastic tissue, and it's the reason why our lungs are so resilient. They expand and contract when we breathe. The elastic tissue which is in a sense very similar to a rubberband, for example, in terms

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the its recoiling properties, is very resistant to necrosis and low blood flow. So it remains, it's preserved. Because the other tissue is destroyed in an infarct, the elastic tissue collapses on itself. So if you see a scar that has a lot of elastic tissue jumbled together, you would conclude that was an infarct.
Q. Doctor, this elastic tissue, does it have a certain appearance that you can describe under a microscope?
A. Yes.
Q. What is that appearance?
A. It looks very serpentinus. It's serpentine like, with coils.
Q. Is it wavy?
A. Yes, it's wavy.
Q. When you say serpentine, is that wavy and jumbled up?
A. If you've ever been to a zoo and seen snakes, you can see where the term "serpentine" comes from.
Q. In addition to the research that you've done, including the article on the extracellular matrix of pulmonary scar carcinoma, in addition to that research, are you familiar with

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pathology literature that discusses whether scars cause cancer or cancer causes scars?
A. Yes.
Q. And are you familiar that there have been various opinions raised about this issue over the past 20 years or so?
A. Yes.
Q. Doctor, in your opinion with a reasonable decree of medical certainty, do you believe that scars cause cancer or that cancer causes scars or that both occur in the lung?
A. I think under certain situations both can occur or at least a scar can predispose to a cancer or the cancer can induce the scar.
Q. And is that also true for BACs? Can BACs arise from scars and can scarring -- strike that.
Can BACs arise from scars or can BACs

cause scarring?
A. Both can occur.
Q. Are you familiar with the epidemiology literature that has demonstrated certain lung cancers are associated with smoking?
A. Yes.
Q. And when researchers say that there is

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an association between a certain type of lung cancer and smoking, does that mean that there is a higher incidence in smokers when compared to never smokers?
A. Yes.
Q. If smoking caused a certain type of lung cancer, would you expected to see an association between smoking and that lung cancer?
A. I would expect to see more than just an association. It would have to be a strong association, and it would also have to fulfill certain epidemiological criteria such as a relationship between dose of exposure and incidence of disease. There's a number of criteria that have to be met before an association becomes causative.
Q. Even with epidemiological principles?
A. Especially with epidemiological study.
Q. Now, so therefore, one of the things among others you would expect to see is a higher incidence or more of a particular type of lung cancer in smokers than in nonsmokers before you could say epidemiologically that the smoking caused the type of lung cancer?
A. They would have to at least be that.

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Q. In your research, Doctor, and in the study you published in 1993 or 1994, the "Rising Incidence of Bronchioloalveolar Lung Carcinoma and it's Unique Clinicopathological Features," in that study, Doctor, was there an association between BAC and smoking?
A. Our cases of BAC were sort of roughly equally divided into three groups. About a third never smoked, a third infrequently or remotely smoked, and a third smoked. So based on that distribution, there was not a convincing association of smoking with BAC.
Q. In fact, Doctor, was there any increase in BAC in smokers compared to the nonsmokers?
A. No BAC increased in both smokers as well as nonsmokers.
Q. And, Doctor, this is based upon a study using the clinical criteria for BAC that you used in this case?
A. Well, the pathological criteria that I used.
Q. Let me get the question correctly.
This finding that there was no increase in BAC in smokers compared to nonsmokers

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utilized and was based upon the pathological criteria for bronchioloalveolar lung carcinoma that you applied in this case to Mrs. Boerner?

A. Yes.
Q. Now, in doing the research you have done on BAC, Doctor, have you reviewed the published scientific literature?
A. Yes.
Q. And are you aware of any scientific evidence that shows there is an increased incidence of BAC in former smokers when compared to smokers?
A. There are studies that show an association in former smokers with adenocarcinoma but not specifically. But the association -- the studies that addressed a relationship of smoking to BAC, while there are sometimes some associations, they are not strong. They are not convincingly of a strong enough nature to imply a causation.
Q. Referring to the lung cancers that arise from a scar, do you know of any research that has associated those cancers with smoking?
A. No.
Q. I want to talk a little wee bit about Mrs. Boerner's pathology and you've already told us that you've reviewed the pathology, and you've told

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us you've reviewed the slides from the biopsy lobectomy from the metastasis and the neostatial nodes. And I understand from the review of all this pathology that your diagnosis with a reasonable degree of medical certainty was a bronchioloalveolar lung carcinoma with dedifferentiation; is that correct?
A. Yes.
Q. And, again, the diagnosis in Mrs. Boerner's case and coming up with that diagnosis, you applied the same criteria that is listed and set forth in your article that we've attached as Exhibit 4; correct?
A. Yes, and also the same criteria I would apply to any case that I saw in my duties as a pathologist at UCLA.
Q. If the pathology from Mrs. Boerner's cancer had been in the population of cancers that you reviewed for your study that was reported in the journal "Cancer," what lung cancer type would she been classified as?
A. I classified her as a nonmucinous BAC with areas of dedifferentiation.
Q. Now let's talk about the dedifferentiation. What did the areas of

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dedifferentiation resemble?
A. There were areas that looked like adenocarcinoma, squamous carcinoma. There were areas that were kind of mixed adenosquamous and there were areas of clear cell carcinoma.
Q. And is that reflected in what has been marked as Exhibit 3 B?
A. Yes.
Q. And, doctor, 3-B is a picture that was taken from a slide of Mrs. Boerner's pathology?
A. Yes.
Q. To an reasonable degree of medical certainty, Doctor, did the dedifferentiated portion of Mrs. Boerner's tumor develop after the BAC?

A. Yes.
Q. To a reasonable degree of medical certainty, Doctor, did the dedifferentiated portion of Mrs. Boerner's tumor develop after 1981?
A. Yes. I feel that the dedifferentiated tumor is a very rapidly growing, very aggressive tumor that could not have been around very long, and so I wouldn't think that it could have existed for, you know, a period of 15 years. Therefore, it would have had to develop after 1981.
Q. And did smoking have anything to do

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with the dedifferentiation of Mrs. Boerner's tumor?
A. Given the fact that she was no longer smoking after 1981 and given the fact that this tumor is a BAC, I'm not convinced that there's a link between the two.
Q. Did you see BAC tumors, Doctor, in your study that you have published on the rising incidence of bronchioloalveolar lung carcinoma and it's unique clinicopathologic features that had dedifferentiated into areas of squamous and adeno and adenosquamous and clear cell like you've seen some in Mrs. Boerner's case?
A. The majority of cases of dedifferentiation were those into adeno. Poorly differentiated adeno or undifferentiated. The purpose of that study, the main thrust was to discuss and to note the rising incidence of BAC. It wasn't a study intended to analyze this very specific type of dedifferentiation, per se, and so I don't -- the study doesn't mention squamous differentiation or clear cell. I'm sure if I went back looked specifically for that. I would probably see some case that's would fit that. But the ones that were mainly seen were those into poorly differentiated adeno.

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Q. Is there any or evidence besides the microscopic appearance that support your view that this is a BAC with dedifferentiation?
A. That's a major finding, but the fact that there's a scar, that the tumor is arising peripherally, that there are precursor lesions of bronchioloalveolar metaplasia and hyperplasia and hyperplasia with atypia that seem to be progressing into the areas of BAC, the lack of any change in the major bronchi of a displastic or metaplastic nature, and the fact that there's a big scar with elastic tissue right next to where the BAC is, all those things are supportive of that diagnosis, but the major finding is the lepidic growth pattern and the finding of BAC-type cells.
Q. Let's talk a minute about these precursor lesions. Doctor, what are precursor lesions?
A. In humans, cancer is not thought to begin and develop overnight. It's not a single hit where a normal cell becomes a frankly malignant cell. Human cancers are thought to go through a series of steps sort of like going up an escalator. You start at the bottom; your cell is normal. You get to the top and you have a cancer,

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but on the way, you have to go through a series of changes or steps, and those steps are defined as "precursor lesions." They are changes that have occurred in cells that are not cancer yet, but they are developing along those lines. And precursor lesions in the lung, there's really two kinds of precursor lesions. There are those that arise in the central airways that are called bronchial metaplasia and carcinoma and cito and those that arise peripheral that are called bronchioloalveolar metaplasia and metaplasia.

Q. You said the ones that arise in the bronchi are the precursors. Are those like the air tubes of the lungs?

A. Yes.

Q. And you say those give rise to cancer eventually?

A. Yes.

Q. Are those precursor lesions associated with smoking?

A. Oftentimes they are.

Q. And have you done study on precursor lesions? Are you currently doing studies?

A. Yes.

Q. Did you see any of those

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smoking-related precursor lesions in Mrs. Boerner's cancer?

A. No.

Q. In fact, Doctor, do you have some pictures of where those precursor lesions would be to show us and to show us what the effect on Mrs. Boerner's cancer would be?

A. I have two pictures that are labeled C and D of the normal appearing bronchi. In fact, one picture is adjacent her cancer but doesn't show any changes.

Q. Now, let's talk about what we have as 4-C first. Let me look at 4-C.

A. 4-C is a section of a major bronchus.

Q. Now, point out to us if you would, and you are going to have to maybe draw with a pen on this an arrow to where the bronchus really is. What is the bronchus?

A. It's this structure which is lined by these cells.

Q. Could you just put an arrow on that picture?

A. Sure. (The witness complies.)

Q. Now, if there were precursor lesions due to smoking, this is where you'd expect to see

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them in this bronchial-type tissue?

A. Yes.

Q. And do you see any precursor lesions there at all?

A. No, in fact, the bronchi look totally healthy, totally normal. They have cilia.

Q. Is this representative of the bronchi that you saw in Mrs. Boerner's pathology?

A. Yes.

Q. Doctor, what do we have as 4-D?

A. It's another section of a bronchus. The only difference is there's some tumor near by.
Q. Now, what I'd like to you do, again, if you would, I hate to draw on your pictures but just put an arrow to the tumor, if you would.
A. (Indicating.)
Q. And put a little "T" there if you would.
A. (Indicating.)
Q. Now that's tumor. Is that tumor at the bronchus?
A. It's under the bronchus.
Q. Did you see any tumor, Doctor, that was arising from the bronchus?
A. No.

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Q. Is this tumor arising from the bronchus?
A. No.
Q. Now, where is the bronchus?
A. It's overlying the tumor.
Q. Could you again put an arrow to that.
A. (Indicating.)
Q. And what do we see with that bronchus, Doctor?
A. The bronchus looks normal. There's cilia, and it's normal in appearance.
Q. Again, is this the area where you would expect to find the smoking-related precursor lesions if they were to develop?
A. Yes.
Q. And you saw no precursor lesions related to smoking?
A. Right. And I also saw no precursor lesions going into the tumor from the vantage point of the bronchus.
Q. And, Doctor, how would you define this bronchus and that cilia?
A. Normal.
Q. What is cilia?
A. Cilia is a structure that's related to

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what's seen in certain cells, especially respiratory cells, and it has a flagellar-like function. These are structures on the outside of the cell that are thought to move difficult particles that go into our lung. It's thought to sort of move them out of our lung.
Q. Like a little sweeper?
A. Yes.
Q. And these little cilia, they are like little tiny, tiny, tiny hairs?
A. Yes.
Q. And they are very, very delicate?
A. Yes.
Q. And they are in absolutely normal shape in this picture?
A. Yes.
Q. And is that what you saw throughout the pathology of Mrs. Boerner?
A. Yes, in her bronchus.
Q. Again, the bronchus, again, are the air tubes where the cancer did not arise?

A. Right.
Q. Now, Doctor, did you see any precursor lesions in Mrs. Boerner's case?
A. Yes. They were in the peripherally --

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they were peripheral lesions, and I had termed them bronchioloalveolar metaplasia, hyperplasia and hyperplasia with atypia.
Q. And what is, again, the significance of finding these precursor lesions in Mrs. Boerner's cancer?
A. These precursor lesions are thought to antedate the development of BAC, and finding them was significant because it told me that that's where the BAC was taking origin from. In addition, these precursor lesions are not well understood and their genesis is unknown and, again, these are precursor lesions who's progression has not been linked to smoking.
Q. You said it was important to know where these precursor lesions were. Where were they?
A. They were adjacent to the scar in the periphery of the lung and adjacent the developing BAC.
Q. So if I can get a picture of this, Doctor. We have this big scar that you said was from an infarct, and then from that scar we have these precursor lesions, and then the precursor lesions developed into the BAC cancer of

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Mrs. Boerner?
A. Yes.
Q. Do you have any pictures where you can take us through this process and show us how this looked?
A. Yes, they are labeled Boerner G, H and I and Y.
Q. If you would, Doctor, I'm just going to let you take us through those one at a time, and if you could kind of start with tell us what we have and what it looks like.
A. Well, we'll start with G. G shows some bronchioloalveolar metaplasia in the alveolar spaces.
Q. Alveolar spaces, again, are what?
A. They are the sacs or the sponge areas of the lung that fill with air.
Q. And this bronchioloalveolar metaplasia did you say?
A. Yes.
Q. Is that cancer?
A. No.
Q. What is it?
A. It's a switch from the alveolar cell which normally lines the alveolar space to a

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bronchioloalveolar cell. It's a cell that resembles a cell that's normally in the bronchus.
Q. This is a cell that's undergone a change but not cancerous?
A. A metaplastic change.
Q. And metaplastic means?

A. Metaplastic is a switch from a mature adult cell type to a mature adult cell type. It may be or may not be a precursor to cancer, but it's not cancer.
Q. But it gives you as a pathologist some concerns about what's going on here?
A. Especially if you see the next lesion which is bronchioloalveolar hyperplasia.
Q. And what is that?
A. It's the same beginnings as what I described for metaplasia. It's a switch from the normal alveolar cell to the bronchiole cell, but the bronchiole cell has undergone some proliferation cell division. It's more numerous and thicker in terms of its appearance.
Q. Now what slide is that what we're looking at?
A. That's Boerner H -- excuse me. H.
Q. So we've moved now from the bronchiole

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metaplasia. We're getting more transformation here but we're not cancer yet?
A. Correct.
Q. And as this continues to move, Doctor, what's the next event?
A. The next molecular event is unknown but the next morphological description --
Q. What is morphological description?
A. It's what pathologist see under the microscope. The next thing we see is in Boerner I, and again, the process has continued in its degree. There's more proliferation. There's more involvement of the alveolar space. There are more bronchial cells. They are more prominent, more numerous and more atypical in terms of their size and nuclear features.
Q. And, again, these are all taken from Mrs. Boerner's pathology?
A. Right.
Q. What's the next picture you have there?
A. The next picture is labeled Boerner J, and it's an area where BAC has now developed from one of these foci.
Q. And these foci being the what?

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A. These foci of bronchioloalveolar hyperplasia and atypia.
Q. So now we have seen the transition from the bronchio metaplasia all the way through to finally it reaches frank cancer?
A. Yes.
Q. We have BAC cancer?
A. Yes.
Q. Doctor, if you could just go back to I for a minute and what do we have with I?
A. I is a focus of bronchioloalveolar hyperplasia with atypia.
Q. And what is atypia?
A. Again, it's a descriptive morphological finding that connotes variation in shape and size of the cells and the nuclear features.

Q. Does atypia mean it's more abnormal than the material we saw before?
A. Yes.
Q. So this is, again, becoming more and more closer to becoming cancerous?
A. Yes.
Q. Doctor, the remaining two slides, what do you have there?

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A. These are slides that are labeled E and F.
Q. Again, from Mrs. Boerner's pathology.
A. E shows this pulmonary scar, which is filled with a very pink wavy serpentinus elastic tissue.
Q. Serpentinus, is that the same thing as that serpentine, the snake-like wavy things you talked about?
A. Yes.
Q. And could you tell us, is this high magnification, low magnification?
A. Sort of middle.
Q. How big was this scar?
A. It was fairly obvious. I would say it measured at least a few millimeters.
Q. Is it something that one could easily miss on reviewing the pathology?
A. I don't think so. It was very prominent when I reviewed these slides. In fact, I also note that when I reviewed the records that when this tumor was removed, the person who described it grossly -- you know, I didn't have an opportunity to do since I just saw the slides. The person who reviewed it describes an area of pleural

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thickening and describes the fact that the tumor was arising subpleurally. I bet you any money that that area of pleural thickening is what corresponds to this scar that I'm seeing.
Q. This infarct scar?
A. Yes.
Q. And, Doctor, is there any doubt in your mind whether that scar was caused by the cancer?
A. Oh, the scar preceded the cancer. The scar was due to an infarct.
The last picture that you asked me about, which was F, in fact shows the scar on one side and the BAC on the other. So it shows the juxtaposition of the two processes.
Q. And is that a low power?
A. Yes, it's a low power.
Q. Doctor, the slides that you have taken that shows the transition that we have gone through from the bronchioloalveolar metaplasia to the atypia and into the frank cancer, where were these in relationship to J?
A. Well, they are in the vicinity. I mean, J doesn't show the foci metaplasia because you can only show so many things on a given

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picture. The point of J is to show the scar and the BAC. But the foci are around the scar in

different areas.
Q. In your opinion, Doctor, with a reasonable degree of medical certainty, did Mrs. Boerner's lung cancer arise out of a preexisting infarct scar?
A. Yes.
Q. In light of your findings that Mrs. Boerner's cancer was a bronchioloalveolar lung carcinoma and was arising from a preexisting scar, can it be said with a reasonable degree of medical probability that smoking was a cause of Mrs. Boerner's lung cancer?
A. No.
Q. Can you say with a reasonable degree of medical probability that if Mrs. Boerner had never smoked she would have avoided her lung cancer?
A. No.
MR. SHEFFLER: Okay. I'm through. Hello?
MS. HARTLEY: I don't have anything else. Is he going to read?
MR. SHEFFLER: Yes, he is.
MS. HARTLEY: Okay. We'll see you later

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then. Have our court reporter get us a copy.
MR. SHEFFLER: One thing, we may try to -- what we have for the purposes of the deposition are some the pictures printed off. Now these are not quite as legible as they would like because of the printer that was used and we may reprint them. If we do, Dr. Barksy will make the arrows, et cetera, as he did today and we will supply you with that copy.
MS. HARTLEY: Okay. Thank you.
(Ending time: 12:11 P.M.)